# TEACHERS' RETIREMENT SYSTEM

# July 1, 2011 Actuarial Valuation, and Beyond

## October 20, 2011
## SAVA Committee Meeting

STATE ADMINISTRATION/VETERANS' AFFAIRS
October 20, 2011
**Exhibit 7**

# Basic Retirement Funding Equation

$$C + I = B + E$$

C = Contributions

I = Investment Income

B = Benefits Paid

E = Expenses (administration)

# Valuation Results

| Contribution For | Description |
| --- | --- |
| Normal Cost | Value of this year's expected benefit accruals |
| UAAL | Unfunded Actuarial Accrued Liability = Accrued Liability - Assets |

"Unfunded Liabilities" are a natural part of retirement system funding, comparable to a mortgage on a home. A plan which is 100% funded is required to contribute the normal cost.

# July 1, 2011
# Valuation Results

# Comments on Valuation

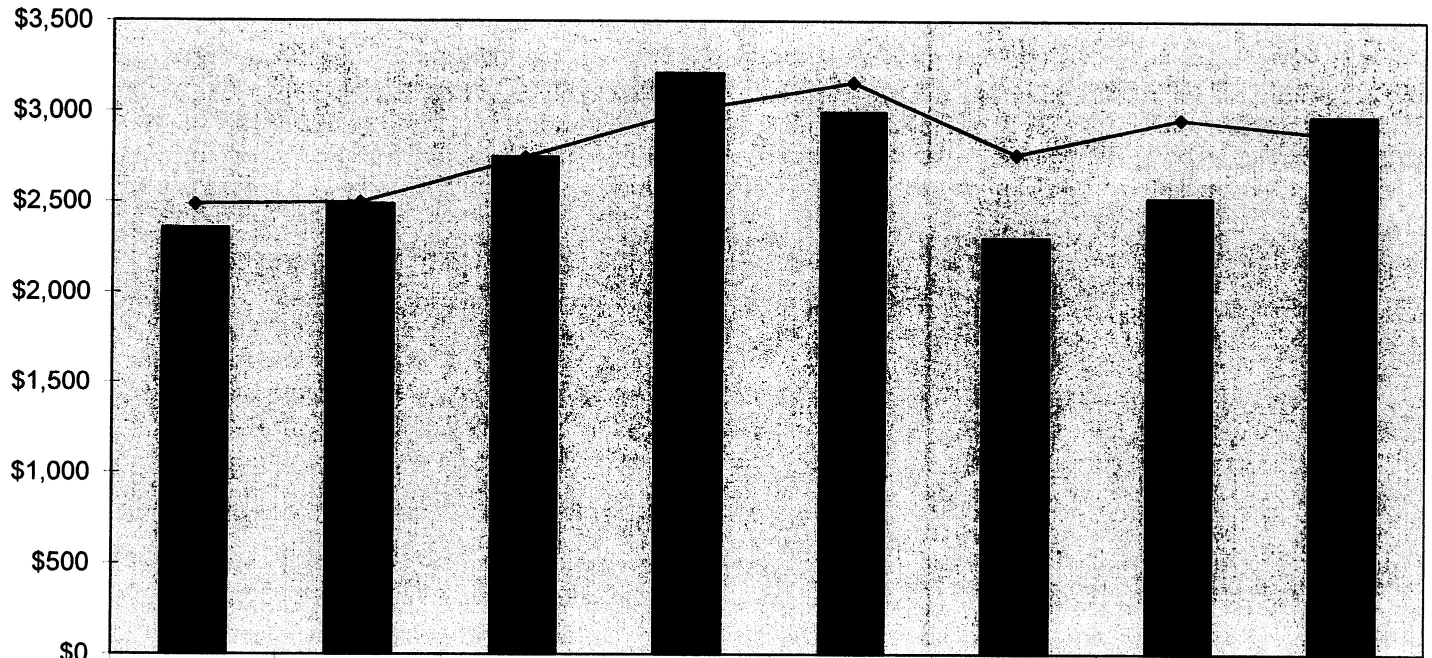
- Informational Purposes Only
- Annual Required Contribution increase
  - 3.53% (9.96% to 13.49%)
- Asset returns
  - Market asset return 21.67% vs. 7.75% expected return (13.92% more than expected).
  - Actuarial asset return (0.13)% vs. 7.75% expected (7.88% less than expected).
- In six of the last ten years, TRS's investment returns exceeded our expected rate of 7.75%.

# Comments on Valuation

- Funded Ratio
  - Funding declined from 65.44% to 61.53%

- Benefit Changes (HB 116 Effective July 1, 2011)
  - Early retirement factors changed to true actuarial equivalent
    - Reduced Unfunded Accrued Liability $6.7 million
    - Reduced Normal Rate 0.12%

# Assets ($ Millions)




| | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 |
|---|---|---|---|---|---|---|---|---|
| Market Value | $2,355 | $2,487 | $2,746 | $3,209 | $2,993 | $2,302 | $2,521 | $2,972 |
| Actuarial Value | $2,486 | $2,498 | $2,746 | $3,006 | $3,159 | $2,762 | $2,957 | $2,866 |

| | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 |
|---|---|---|---|---|---|---|---|---|
| **Market Return** | 13.3% | 8.0% | 8.9% | 17.6% | (4.9)% | (20.8)% | 12.9% | 21.7% |
| **Actuarial Return** | 2.1% | 2.7% | 8.5% | 10.2% | 7.2% | (10.3)% | 9.8% | (0.1)% |

# Funding Results

| | July 1. 2011 Valuation | July 1. 2010 Valuation |
|---|---|---|
| Total Normal Cost Rate | 9.64% | 9.74% |
| Less Member Rate | 7.15% | 7.15% |
| Employer Normal Cost Rate | 2.49% | 2.59% |
| Rate to Amortize UAAL | 7.47% | 7.37% |
| Total Employer Statutory Rate | 9.96% | 9.96% |
| Actuarially Required for Fiscal Year Ended 2012 | N/A | 12.16% |
| Actuarially Required for Fiscal Year Ended 2013 | 13.49% | 14.18% |
| Actuarial Accrued Liability | $4,658.6 million | $4,518.2 million |
| Actuarial Value of Assets | $2,866.5 million | $2,956.6 million |
| Unfunded Accrued Liability | $1,792.1 million | $1,561.6 million |
| Amortization Period (Statutory Rate) | 71 years | 49.5 years |

# 2011 Gain/Loss Analysis
# ($ Millions)

| | UAAL (Gain)/Loss June 30, 2011 | UAAL (Gain)/Loss June 30, 2010 | UAAL (Gain)/Loss June 30, 2009 |
|---|---|---|---|
| **Investment Income** | | | |
| Investment income was (greater) less than expected based on actuarial value of assets. | $ 229.8 | $ (55.2) | $ 561.9 |
| **Pay Increases** | | | |
| Pay increases were (less) greater than expected. | (36.7) | (22.0) | (4.4) |
| **Age & Service Retirements** | | | |
| Members retired at (older) younger ages or with (less) greater final average pay than expected | 19.0 | 13.0 | 6.3 |
| **Disability Retirements** | | | |
| Disability claims were (less) greater than expected | 0.2 | 0.5 | 0.4 |
| **Death-in-Service Benefits** | | | |
| Survivor claims were (less) greater than expected | (0.5) | (0.4) | (0.2) |
| **Withdrawal From Employment** | | | |
| (More) less reserves were released by withdrawals than expected | 5.4 | 6.6 | 4.7 |
| **Death After Retirement** | | | |
| Retirees (died younger) lived longer than expected | 2.6 | (3.5) | (2.8) |
| **Data Adjustments** | | | |
| Service purchases, data corrections, etc. | (10.9) | - | - |
| **Other** | | | |
| Miscellaneous (gains) and losses | 5.8 | 24.4 | 12.0 |
| **Total (Gain) or Loss During Period From Financial Experience** | $ 214.7 | $ (36.6) | $ 577.9 |
| **Non-Recurring Items.** | | | |
| Changes in actuarial assumptions and methods | - | 156.6 | - |
| Changes in benefits caused a (gain) loss | (6.7) | - | - |
| **Composite (Gain) Loss During Period.** | $ 208.0 | $ 120.0 | $ 577.9 |

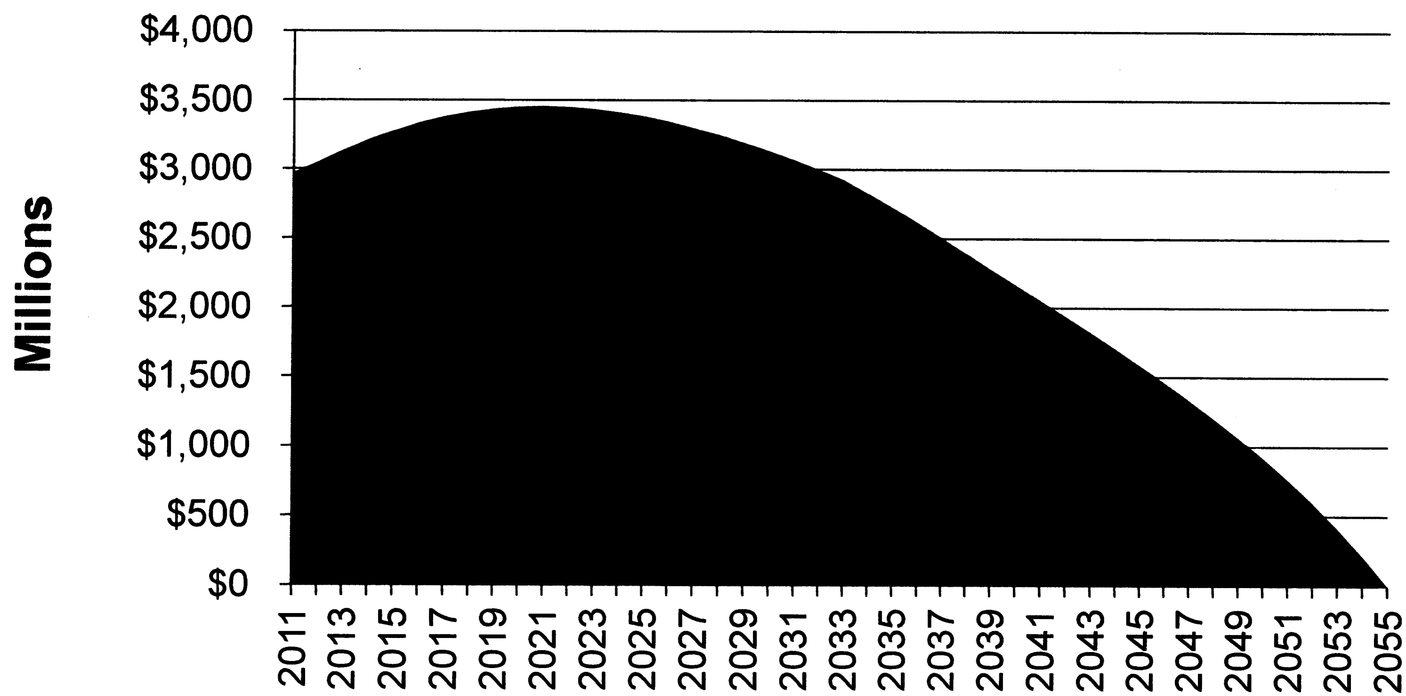
# Current System

# Recent History

- Recent market downturn has put pressure on employer contribution rates
- Employer and employee contribution rates are set in State Statute
  - Employers contribute 7.47%
  - Employees contribute 7.15%
  - State contributes 2.49%
- In the past these contributions were sufficient to fund the normal cost and amortize the Unfunded Actuarial Accrued Liability (UAAL) within a 30 year period
- Absent of extraordinary investment gains in the future, current employer and employee contribution rates are not sufficient to fund the System (System will run out of money)

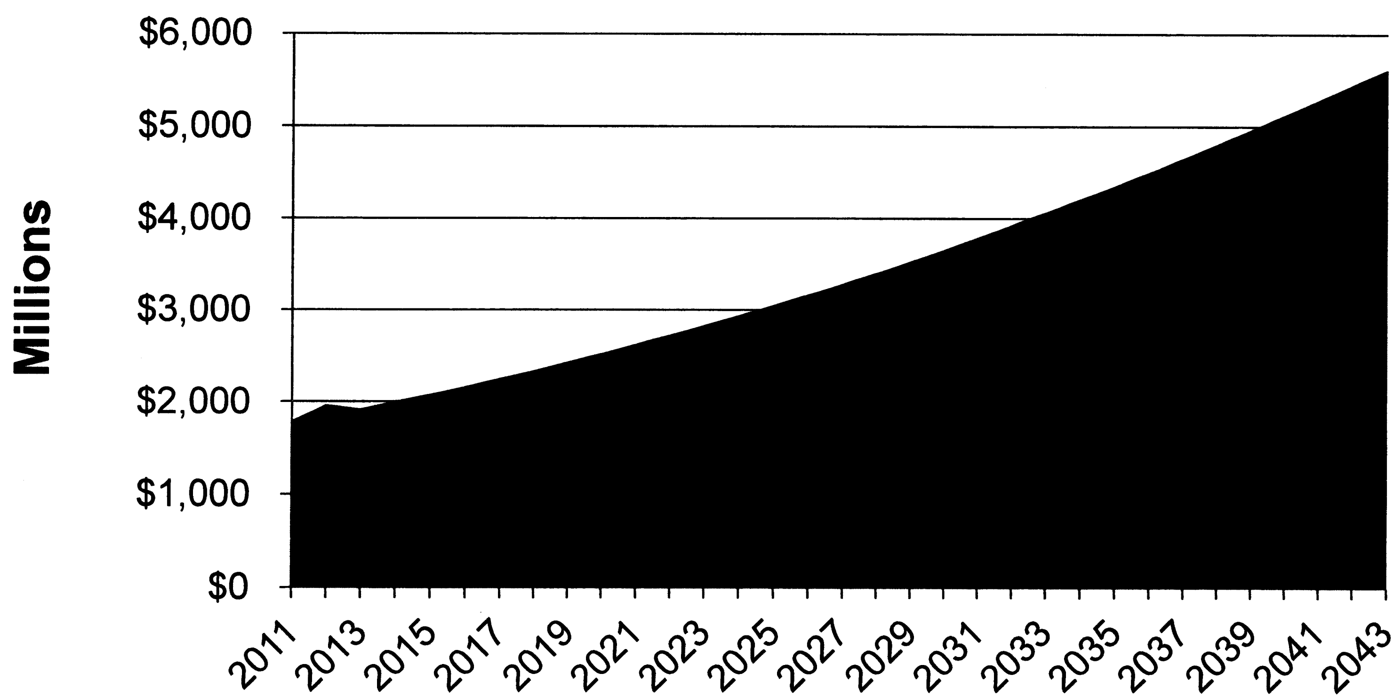
# Projection of System Assets

Member Contribution Rate – 7.15%
Employer Contribution Rate – 9.96%



# Projection of System's Unfunded Accrued Liability

Member Contribution Rate – 7.15%
Employer Contribution Rate – 9.96%



# We Still Have Options

- Projected asset depletion occurs by 2055
- How to avoid asset depletion
  - Additional Contributions to achieve 30 year funding
    - Lump sum contribution of $633 million as of July 1, 2013, or
    - Increase contribution rate from 17.11% to 21.23% as of July 1, 2013
    - New Funding Sources
  - Reduce benefits
  - Combination of both

# Liability Reductions

# Two Tier Benefit Structure
## New Hires Only

- Lower cost benefit structure for new hires will have a smaller Normal Cost Rate
- Over time as active population consists of more members covered under the second tier benefit structure, the average normal rate of the System will decrease. As a result a larger portion of the employer contribution will be used to amortize the UAAL
- Estimated tier two financial impact – Based on July 1, 2010 Valuation

# Two Tier Benefit Structure
## New Hires Only

Benefit design alternatives

- Final compensation (currently highest 3 consecutive yrs)
  - Highest five consecutive years of earned compensation
- Multiplier (currently 1.667%)
  - 1.25%
  - 1.50%
  - 2.00%
- Normal retirement eligibility (any age w/25 yrs, or 60 & 5)
  - Age 60 and completion of five years of service
- Early retirement eligibility (currently age 50 w/5 yrs)
  - Age 50 and completion of five years of service

# Two Tier Benefit Structure
## New Hires Only

Benefit design alternatives (continued)

- Cost-of-living adjustments (GABA 1.5% & 36 months)
  - 1.00% commencing January 1st in each year if the retiree has received benefits for 36 months prior
  - 1.25% commencing January 1st in each year if the retiree has received benefits for 36 months prior
  - 1.50% commencing January 1st in each year if the retiree has received benefits for 36 months prior

# Two Tier Benefit Structure
## New Hires Only

- 1.25% Multiplier
- Five year final average earnings
- Age 60 and five year of service retirement eligibility
- Cost-of-living adjustments
    - Beginning January 1st three years after retirement

| | Current Plan | 1.00% COLA | 1.25% COLA | 1.50% COLA |
|---|---|---|---|---|
| Normal Rate | 9.74% | 6.33% | 6.43% | 6.53% |
| Member Contribution Rate | 7.15% | 7.15% | 7.15% | 7.15% |
| Employer Normal Rate | 2.59% | (0.82)% | (0.72)% | (0.62)% |
| Savings | | 3.41% | 3.31% | 3.21% |

# Two Tier Benefit Structure
## New Hires Only

- 1.50% Multiplier
- Five year final average earnings
- Age 60 and five year of service retirement eligibility
- Cost-of-living adjustments
  - Beginning January 1st three years after retirement

| | Current Plan | 1.00% COLA | 1.25% COLA | 1.50% COLA |
|---|---|---|---|---|
| Normal Rate | 9.74% | 7.35% | 7.47% | 7.58% |
| Member Contribution Rate | 7.15% | 7.15% | 7.15% | 7.15% |
| Employer Normal Rate | 2.59% | 0.20% | 0.32% | 0.43% |
| Savings | | 2.39% | 2.27% | 2.16% |

# Two Tier Benefit Structure
## New Hires Only

- 2.00% Multiplier
- Five year final average earnings
- Age 60 and five year of service retirement eligibility
- Cost-of-living adjustments
  - Beginning January 1st three years after retirement

| | Current Plan | 1.00% COLA | 1.25% COLA | 1.50% COLA |
|---|---|---|---|---|
| Normal Rate | 9.74% | 9.39% | 9.55% | 9.70% |
| Member Contribution Rate | 7.15% | 7.15% | 7.15% | 7.15% |
| Employer Normal Rate | 2.59% | 2.24% | 2.40% | 2.55% |
| Savings | | 0.35% | 0.19% | 0.04% |

# Two Tier Benefit Structure
## New Hires Only

Conclusions

- Some benefit combinations produce a normal rate that is less than the current member contribution rate. We would recommend a reduction to the mandatory member contribution in these cases
- Benefit reductions for new hires are not enough, would also require additional funding or extraordinary investment gains

# Liability Reductions (continued)

## Plan Changes for Current Members

# Plan Changes for Current Active Members

- Increase Employee Contribution Rates
  - 0.50% to **7.65%**
  - 1.00% to **8.15%**
- Final Average Compensation
  - Three years to **five years**
- Accrual Rate Reduction from 1.67% to 1.50%
- Vesting from five years to **ten** years
- Suspend a portion of the GABA for current actives and retired members
- Early retirement
  - Increase from age 50 and 5 years of service to age 55 and 5 years of service
- Unreduced early retirement from age 60 and 5 years of service or 25 years of service regardless of age to
  - Age 60 and 5 years of service or 30 years of service regardless of age
  - Age 65 and 5 years of service or 30 years of service regardless of age
- Set triggers to Adjust Future Contributions and/or Benefits

# Employee Contribution Rate Alternatives

| | Current Plan | Alternatives | |
|---|---|---|---|
| Employee Contribution Rate | 7.15% | 7.65% | 8.15% |
| Assets and Liabilities | | | |
| Actuarial Accrued Liability (AAL) | $4,658.6 | $4,650.7 | $4,647.4 |
| Actuarial Value of Assets (AVA) | 2,866.5 | 2,866.5 | 2,866.5 |
| Unfunded Actuarial Accrued Liability (UAAL) | 1,792.1 | 1,784.2 | 1,780.9 |
| Annual Required Contributions | | | |
| Statutory Funding | 17.11% | 17.61% | 18.11% |
| Normal Cost Rate | 9.64% | 9.82% | 9.90% |
| Available for Amortization | 7.47% | 7.79% | 8.21% |
| Amortization Period | 71 years | 61 years | 53 years |
| 30-Year Funding Rate | 20.64% | 20.77% | 20.83% |
| Shortfall | 3.53% | 3.16% | 2.72% |

# Final Average Compensation

| | Current Plan | Alternative |
|---|---|---|
| Average Final Compensation | 3 Years | 5 Years |
| Assets and Liabilities | | |
| Actuarial Accrued Liability (AAL) | $4,658.6 | $4,579.4 |
| Actuarial Value of Assets (AVA) | 2,866.5 | 2,866.5 |
| Unfunded Actuarial Accrued Liability (UAAL) | 1,792.1 | 1,712.9 |
| Annual Required Contributions | | |
| Statutory Funding | 17.11% | 17.11% |
| Normal Cost Rate | 9.64% | 9.26% |
| Available for Amortization | 7.47% | 7.85% |
| Amortization Period | 71 years | 53 years |
| 30-Year Funding Rate | 20.64% | 19.73% |
| Shortfall | 3.53% | 2.62% |

# Accrual Rate

| | Current Plan | Alternative |
|---|---|---|
| Accrual Rate | 1.67% | 1.50% |
| Assets and Liabilities | | |
| Actuarial Accrued Liability (AAL) | $4,658.6 | $4,463.6 |
| Actuarial Value of Assets (AVA) | 2,866.5 | 2,866.5 |
| Unfunded Actuarial Accrued Liability (UAAL) | 1,792.1 | 1,597.1 |
| Annual Required Contributions | | |
| Statutory Funding | 17.11% | 17.11% |
| Normal Cost Rate | 9.64% | 8.78% |
| Available for Amortization | 7.47% | 8.33% |
| Amortization Period | 71 years | 40 years |
| 30-Year Funding Rate | 20.64% | 18.47% |
| Shortfall | 3.53% | 1.36% |

# GABA

| | Current Plan | Alternative |
|---|---|---|
| GABA | 1.50% | 1.25% |
| Assets and Liabilities | | |
| Actuarial Accrued Liability (AAL) | $4,658.6 | $4,162.3 |
| Actuarial Value of Assets (AVA) | 2,866.5 | 2,866.5 |
| Unfunded Actuarial Accrued Liability (UAAL) | 1,792.1 | 1,295.8 |
| Annual Required Contributions | | |
| Statutory Funding | 17.11% | 17.11% |
| Normal Cost Rate | 9.64% | 9.48% |
| Available for Amortization | 7.47% | 7.63% |
| Amortization Period | 71 years | 62 years |
| 30-Year Funding Rate | 20.64% | 20.25 |
| Shortfall | 3.53% | 3.14 |

# Unreduced Retirement

| | Current Plan | Alternatives | |
|---|---|---|---|
| Unreduced Retirement | Age 60 and 5 or 25 Years of Service | Age 60 and 5 or 30 Years of Service | Age 65 and 5 or 30 Years of Service |
| Assets and Liabilities | | | |
| Actuarial Accrued Liability (AAL) | $4,658.6 | $4,596.2 | $4,519.8 |
| Actuarial Value of Assets (AVA) | 2,866.5 | 2,866.5 | 2,866.5 |
| Unfunded Actuarial Accrued Liability (UAAL) | 1,792.1 | 1,729.7 | 1,653.3 |
| Annual Required Contributions | | | |
| Statutory Funding | 17.11% | 17.11% | 17.11% |
| Normal Cost Rate | 9.64% | 9.19% | 8.63% |
| Available for Amortization | 7.47% | 7.92% | 8.48% |
| Amortization Period | 71 years | 54 years | 41 years |
| 30-Year Funding Rate | 20.64% | 19.77% | 18.70% |
| Shortfall | 3.53% | 2.66% | 1.59% |

# Reduced Early Retirement

| | Current Plan | Alternative |
|---|---|---|
| Reduced Early Retirement | Age 50 and five years of service | Age 55 and five years of service |
| Assets and Liabilities | | |
| Actuarial Accrued Liability (AAL) | $4,658.6 | $4,654.4 |
| Actuarial Value of Assets (AVA) | 2,866.5 | 2,866.5 |
| Unfunded Actuarial Accrued Liability (UAAL) | 1,792.1 | 1,787.9 |
| Annual Required Contributions | | |
| Statutory Funding | 17.11% | 17.11% |
| Normal Cost Rate | 9.64% | 9.61% |
| Available for Amortization | 7.47% | 7.50% |
| Amortization Period | 71 years | 70 years |
| 30-Year Funding Rate | 20.64% | 20.59% |
| Shortfall | 3.53% | 3.48% |

# Vesting

| | Current Plan | Alternative |
|---|---|---|
| Vesting | 5 Years | 10 Years |
| Assets and Liabilities | | |
| Actuarial Accrued Liability (AAL) | $4,658.6 | $4,653.8 |
| Actuarial Value of Assets (AVA) | 2,866.5 | 2,866.5 |
| Unfunded Actuarial Accrued Liability (UAAL) | 1,792.1 | 1,787.3 |
| Annual Required Contributions | | |
| Statutory Funding | 17.11% | 17.11% |
| Normal Cost Rate | 9.64% | 9.57% |
| Available for Amortization | 7.47% | 7.54% |
| Amortization Period | 71 years | 68 years |
| 30-Year Funding Rate | 20.64% | 20.54% |
| Shortfall | 3.53% | 3.43% |

# Summary

- The good news is the unfunded liability does not come due all at once. Rather, the retirement system will realize those liabilities over 20 to 30 years as today's teachers retire.
- Far from needing an immediate and staggering infusion of taxpayer dollars, the fund can be righted with more prudent, gradual, and relatively small adjustments.
- Any changes can be incremental and phased in over time.

# Summary (continued)

- The sooner we make those adjustments, the better the outcome will be for everyone—teachers, retirees, employers, and taxpayers.
- We're working on the issue and will be seeking your input as we move forward.

# GASB Exposure Draft

# GASB Exposure Draft

- View the cost of pensions within the context of an ongoing, career-long employment relationship
- Accounting-based versus funding based approach to measurement
- Measure of the employer's obligation to employees and the current period cost to taxpayers of providing governmental services
- Assumes that employer is primarily responsible for the unfunded pension obligation resulting from an employment exchange

# GASB Exposure Draft

- The difference between the total pension liability and the plan net position would be reported as a net pension liability in the financial statements of the government
- Each governmental entity participating in a cost-sharing plan would report a liability in its own financial statements that is equivalent to its proportionate share of the collective unfunded obligation of the employers in the cost-sharing plan